# 3-D, Virtual Incident Management Training


CATT LABORATORY

UNIVERSITY OF MARYLAND

FORTERRA SYSTEMS INC

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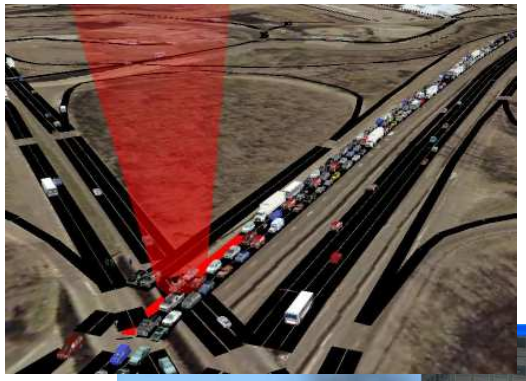
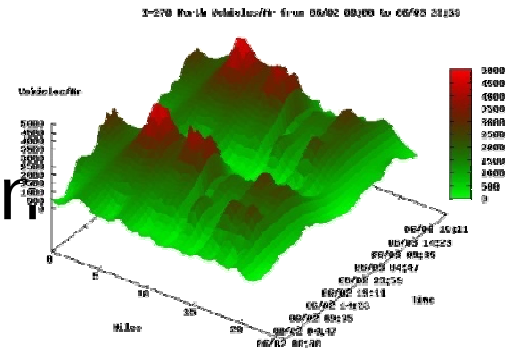
# Who We Are…

- 35 Undergrad Student Developers
  - Civil Engineering
  - Computer Science/Eng.
  - Mechanical Engineering
  - Aerospace Engineering
  - Geography & GIS
  - Telecommunications
  - Art
- 13 Graduate Students
- 7 Full-time Developers, Engineers, & Researchers

# What We Do…

- Intelligent Transportation Systems
- Transportation Data Archiving
- Data Visualization Techniques
- User Interface Design
- Serious Games Development
- Data fusion, interpolation and forecasting
- Incident Management





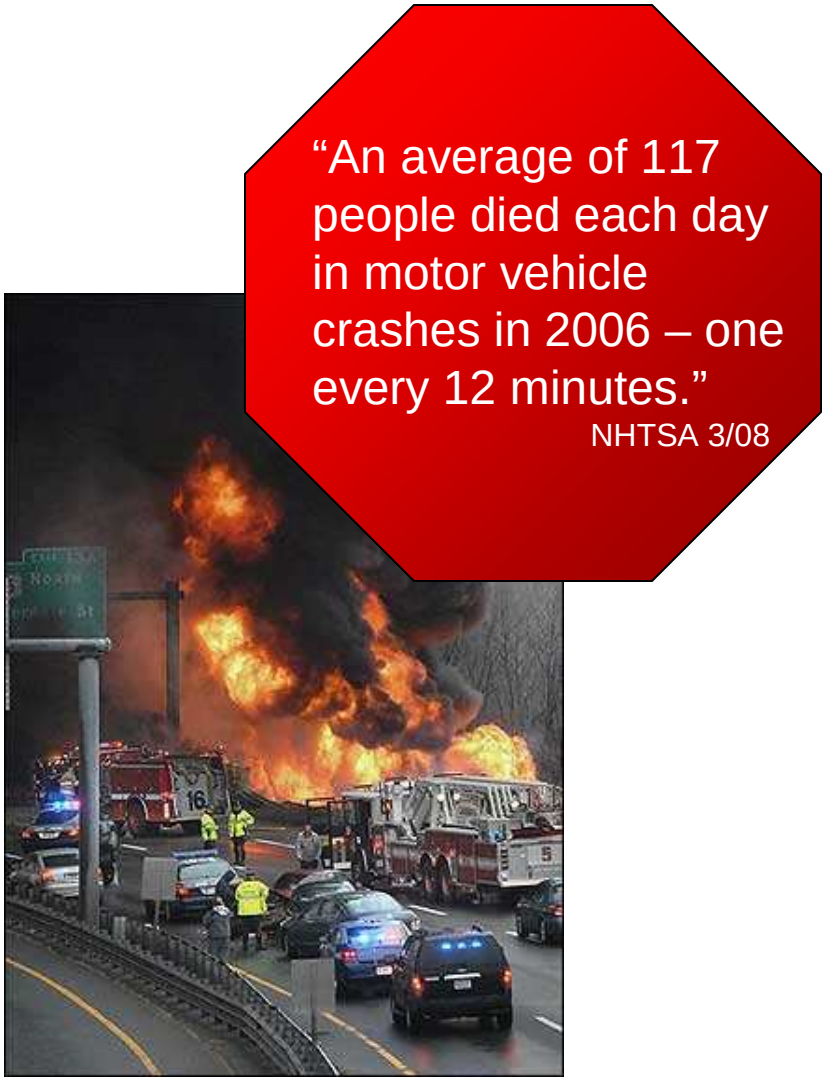
# Incident & Construction Zone Management Training

# Safety (Public and First Responder)

15-30% of all crashes on freeways are secondary to other minor incidents – often more serious than the initial one, and Incident Responder injuries are significant.

| 2006 National Statistics | | |
|---|---|---|
| **Crash Type** | **# of Crashes** | **# of Victims** |
| Fatal | 1,784,000 | 42,642 |
| Injury | | 2,575,000 |
| Property Damage Only | 4,189,000 | - |
| Total | 5,973,000 | 2,617,642 |
| Cost of Crashes, 2000 (last avail.) | $230.6 billion | |

# Responder Safety




- Responder Deaths and Injuries
  - 300 officer deaths per year
  - 20% firefighter deaths on roads
  - 5 towing struck-bys first 3 months of 2006
- About 10,000 squads, 2,000 fire trucks, 3,000 other service vehicles struck going to or at a traffic incident.

Source: www.respondersafety.com, 2005

# Transportation Incident Mgmt. Training

## The I-95 Corridor Coalition


- An alliance of:
  - Transportation Agencies
  - Toll Authorities
  - Law Enforcement
  - Related agencies
- Concerned with transportation management and operations issues
- Lots of Incident Mgmt. Training Needs

# Incident Management Training is…

- Expensive
- Time Consuming
- Requires travel
- Difficult to coordinate


# In the Netherlands…

# Coalition wanted similar thing…

- Many different players involved in Traffic Incident Management
- Massive-multiplayer technology needed
- Voice Communications needed

# Forterra's OLIVE Platform

- $60M invested…
- Currently being used by the U.S. Military.  Soldiers in Iraq train with future replacements from the U.S. in virtual reconstructions of Baghdad and other locations.
- Additional clients include: There.com, MTV Networks, Stanford School of

# In the news…

# Sample Scenario

# Live Demonstration

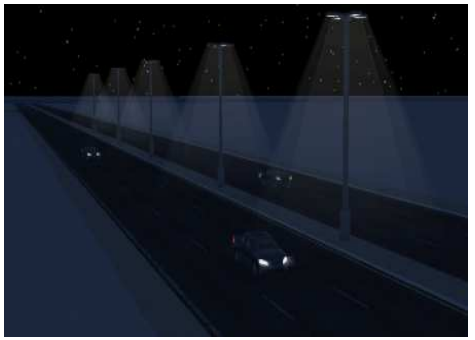
# Current Status

- Early Stages of Development
- Steering Committee in place
  - Determining Training Criteria
  - Asset needs/development
  - Scenario Development
  - Artificial Intelligence (AI)


# Custom Assets/Scenarios

CHART Response Vehicle with changeable animated arrow board

Custom vehicles



Night-time scenes

# Artificial Intelligence

**AI can be used for:**

- Vehicle Movements
- Smoke and Fire
- Spills
- Vests and Safety

Oil slick & Fire

Dynamic vehicle simulations

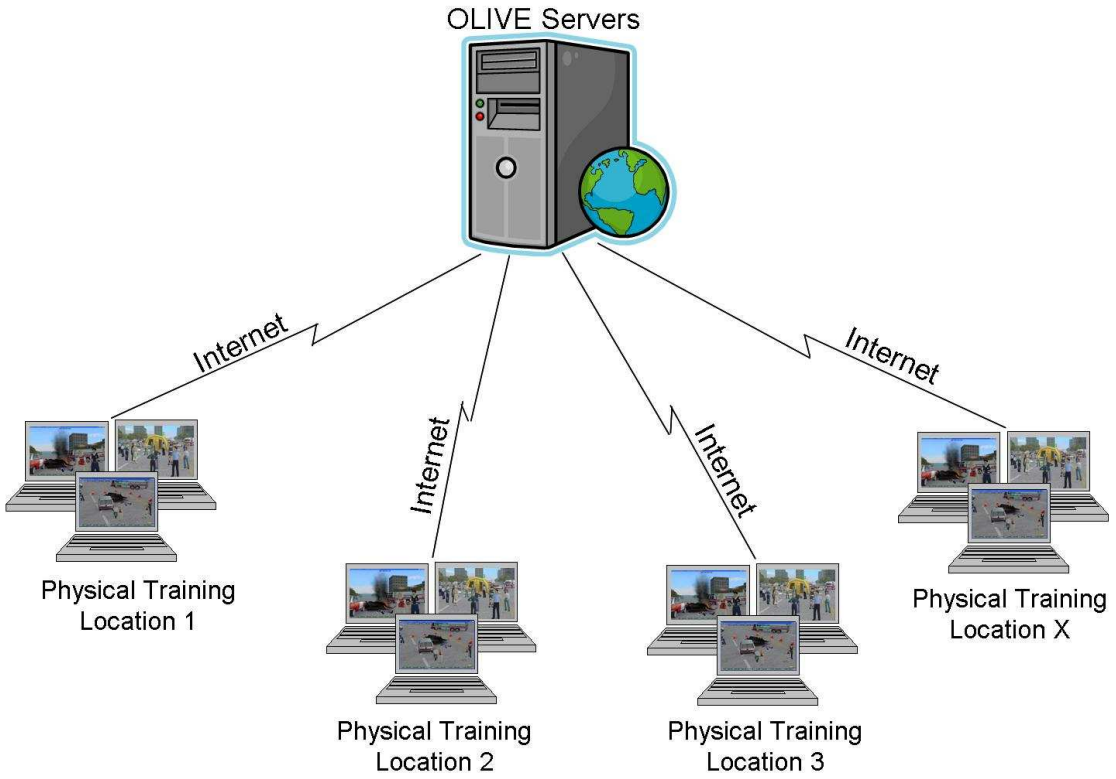
# Implementation Approaches

# Implementations

## 1. Standard Internet-based Training

Summary

Each trainee uses a computer or laptop at the location of their choice. All users connect to a central OLIVE server via the Internet and training occurs independent of physical location restrictions.

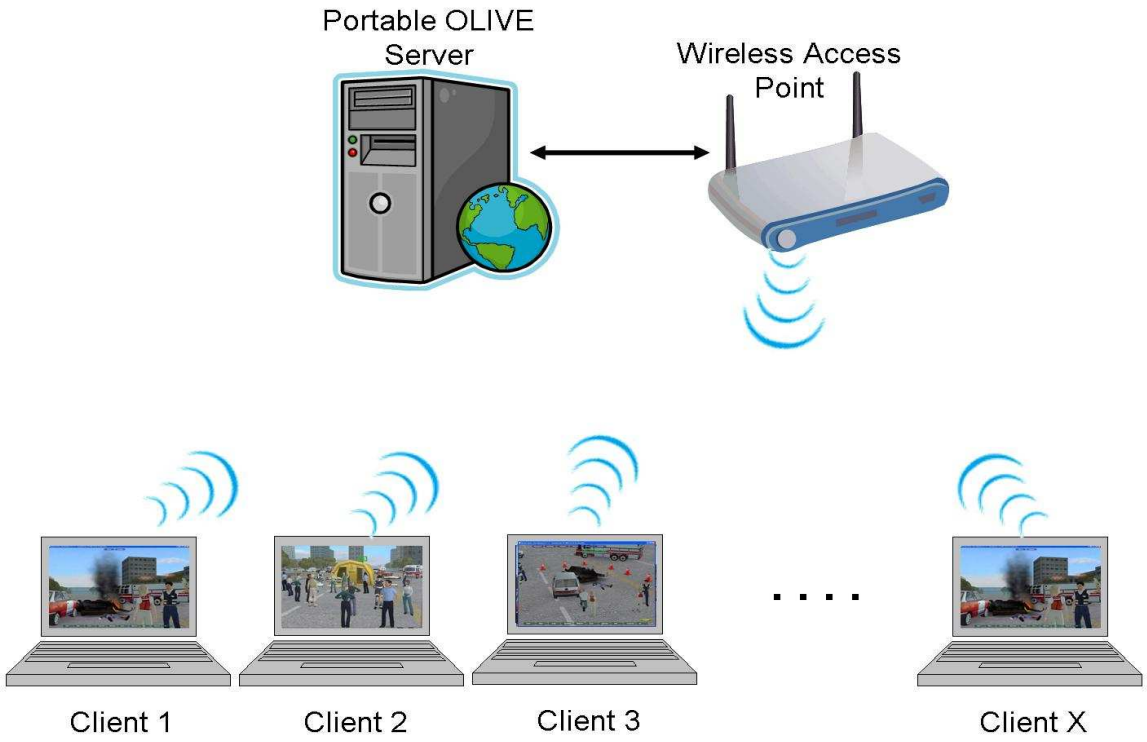


# Implementations

## 2. Mobile

Summary

A portable server hosting the OLIVE platform server is linked to trainee computers/laptops via a wireless access point for centralized training.

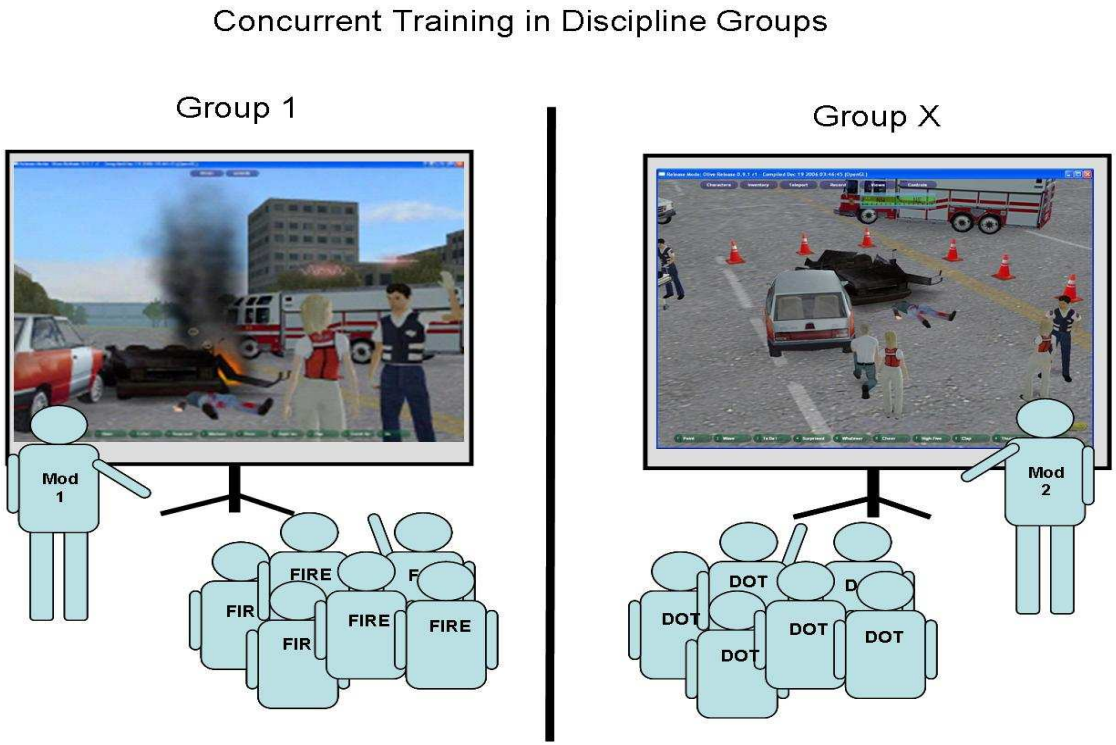


# Implementations

## 3. Group Think

Summary

A single in-world avatar is controlled by a moderator based on the decisions of a group. This strategy may be useful as a means of learning through discussion and collaboration or when computer hardware is unavailable for each individual trainee.



# Implementations

## 4. Individual / Self-study

Summary

Trainees will be presented with a virtual traffic incident and given choices at key moments during the training. Their actions will directly affect the outcome of the training simulation.

# Questions

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